

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of the claims in the application.

1. (Previously Presented) A method, comprising:
obtaining a plurality of e-mails intended for distribution to a plurality of respective destinations;
creating a data node for each e-mail in said plurality of e-mails, wherein each data node includes a pointer to the corresponding e-mail in persistent storage;
processing the plurality of data nodes solely within non persistent storage, without requiring that information indicative of the e-mails be written to and then read from persistent storage during the processing of the data nodes wherein said processing comprises, for each respective data node:
(i) determining a destination domain of the respective data node;
(ii) adding the respective data node to a queue corresponding to the destination domain of the respective data node when the queue exists; and
(iii) creating a queue corresponding to the destination domain and adding the respective data node to the created queue when the queue does not exist; and
wherein said processing further comprises:
selecting a first queue that contains data nodes;
retrieving e-mails corresponding to each of the data nodes in the first queue;
sending each of the retrieved e-mails corresponding to each of the data nodes in the first queue to a destination domain of the first queue; and
extinguishing the first queue.
2. (Previously Presented) A method as in claim 1, further comprising
storing, in persistent storage, recovery information indicative of the processing, said recovery information being used for recovery from a system fault.

3. (Previously Presented) A method as in claim 2 wherein said recovery information includes information indicative of the plurality of e-mails, wherein said information is indicative of less than the entirety of each e-mail in said plurality of e-mails.
4. (Previously Presented) A method as in claim 3, wherein said information indicative of an e-mail in the plurality of e-mails includes a bit vector.
5. (Previously Presented) A method as in claim 1, wherein said sending of each of the e-mails corresponding to each of the data nodes in the first queue from the first queue to the destination domain is done at a specific sending instance.
6. (Previously Presented) A method as in claim 5, wherein said sending comprises opening a communication channel to a single specified domain and sending each of the e-mails within the single communication channel.
7. (Previously Presented) A method as in claim 3, wherein said recovery information includes a numerical designation for each e-mail in said plurality of e-mails, and a state of processing of each e-mail in said plurality of e-mails.
8. (Cancelled)
9. (Previously Presented)) A method as in claim 1, wherein said selecting comprises selecting a first queue which has the greatest number of the e-mails within the queue.
10. (Previously Presented) A method as in claim 1, wherein said selecting comprises selecting a first queue which has existed for the greatest period of time.

11. (Previously Presented) A method as in claim 1, further comprising, during said selection of said first queue, asynchronously looking up domain name server for a second queue, different than the first queue, and selecting the second queue.
12. (Previously Presented) A method as in claim 1, wherein the creating step separates personalized information about each e-mail in the plurality of e-mails from non-personalized information.
13. (Previously Presented) A method as in claim 12, wherein said non-personalized information includes e-mail destination information.
14. (Previously Presented) A method as in claim 5, wherein said processing further comprises:
 - determining information about processing by said destination domain;
 - and
 - adjusting a speed of sending of the e-mails based on said information about processing of said destination domain.
15. (Previously Presented) A method as in claim 14, wherein said information about processing comprises a speed of e-mail processing.
16. (Previously Presented) A method as in claim 1, further comprising:
 - maintaining a log representing information relating to a number of e-mails in said plurality of e-mails which have been processed; and
 - comparing contents of said log with licensing information, to determine if the number of e-mails that has been processed exceeds a licensed number.
17. (Previously Presented) A method as in claim 1, comprising:
 - storing recovery information about a state of processing of the plurality of e-mails to persistent storage, wherein said recovery information comprises less than the entirety of the plurality of e-mails; and

wherein the processing of the plurality of e-mails directs the plurality of e-mails to a desired location without writing the plurality of e-mails to persistent storage during said processing.

18. (Original) A method as in claim 17 wherein said processing comprises sending e-mails from an e-mail client to a desired location.
19. (Previously Presented) A method as in claim 17, wherein said processing comprises receiving e-mails from and distributing said e-mails to said desired location.
20. (Previously Presented) A method as in claim 17, wherein said recovery information includes information indicative of said plurality of e-mails, wherein said information is indicative of less than the entirety of each e-mail in said plurality of e-mails.
21. (Previously Presented) A method as in claim 19, wherein said information indicative of an e-mail in the plurality of e-mails includes a bit vector formed from the e-mail, in said plurality of e-mails, that is indicative of the e-mail.
22. (Previously Presented) A method as in claim 17, wherein said processing comprises:
 - arranging information about the e-mails into a plurality of queues, each queue in said plurality of queues representing a single domain; and
 - sending e-mails to a recipient, by sending a plurality of e-mails to a single domain, represented by a queue in said plurality of queues, at a specific sending instance.
23. (Previously Presented) A method as in claim 18, wherein said sending comprises:
 - opening a communication channel to said desired location; and

sending a plurality of e-mails within the communication channel.

24. (Previously Presented) A method as in claim 17, wherein said recovery information includes a number of e-mails, and a state of processing of each e-mail in said number of emails.
25. (Previously Presented) A method as in claim 22, further comprising selecting a first queue in said plurality of queues to be processed, and sending e-mails from the first queue all at once to the single domain represented by the first queue.
26. (Previously Presented) A method as in claim 25, wherein said first queue has the most e-mails within the queue.
27. (Previously Presented) A method as in claim 25, wherein said first queue has existed for the greatest period of time.
28. (Previously Presented) A method as in claim 25, further comprising, during selection of said first queue, asynchronously looking up domain name server information for a second queue in said plurality of queues that is different than the first queue.
29. (Previously Presented) A method as in claim 17, further comprising: processing the plurality of e-mails by separating personalized information about each e-mail in the plurality of e-mails from non-personalized information.
30. (Previously Presented) A method as in claim 29, wherein said non-personalized information includes destination information for the plurality of e-mails.

31. (Previously Presented) A method as in claim 22, wherein said processing comprises:
- determining a speed of processing of said single domain; and
 - adjusting a speed of sending of the e-mails based on said speed of processing of said single domain.
32. (Previously Presented) A method as in claim 17, further comprising:
- maintaining a log representing information relating to e-mails which have been processed; and
 - comparing contents of said log with licensing information, to determine if said information relating to e-mails exceeds a licensed number.
- 33-59. (Cancelled)
60. (Previously Presented) A method, comprising:
- obtaining a plurality of e-mails for processing;
 - forming a queue map comprising a plurality of queues, each queue in the plurality of queues associated with a specific domain, the queue map representing a plurality of destinations for the plurality of e-mails;
 - sending a plurality of e-mails to a specific destination in said plurality of destinations at a specific time; and
 - asynchronously looking up, during said sending step, DNS information for a domain name using an asynchronous DNS resolver that operates from an offline DNS cache that is periodically updated, for a different destination in said plurality of destinations, to be sent at a future time.
61. (Previously Presented) A method as in claim 60, further comprising:
- processing the plurality of e-mails solely within non persistent storage, without requiring that information indicative of the plurality of e-mails be written to and then read from persistent storage during the processing of the plurality of e-mails.

62. (Previously Presented) A method as in claim 61, further comprising:
storing, in persistent storage, recovery information indicative of the
processing, wherein said recovery information is used for recovery from a system
fault.
63. (Previously Presented) A method as in claim 61, wherein said recovery
information includes information indicative of a plurality of e-mails, wherein
said information is indicative of less than the entirety of each of the e-mails in
said plurality of e-mails.
64. (Previously Presented) A method as in claim 60, wherein said processing
comprises:
arranging information about the plurality of e-mails into said plurality of
queues, each queue in said plurality of queues representing a single domain;
and
sending e-mails to a recipient; by sending a plurality of e-mails from a
queue in said plurality of queues to the single domain that the queue represents
at a specific sending instance.
65. (Previously Presented) A method as in claim 64, wherein said sending
comprises:
opening a communication channel to the single domain; and
sending a plurality of e-mails within the communication channel.
66. (Previously Presented) A method as in claim 63, wherein said recovery
information includes a number of e-mails, and a state of processing of each e-
mail in said number of said e-mails
67. (Previously Presented) A method as in claim 64, further comprising:
selecting a first queue to be processed; and

sending e-mails from the first queue all at once to the single domain.

68. (Previously Presented) A method as in claim 67, wherein said first queue has the most e-mails within the queue.

69. (Previously Presented) A method as in claim 67, wherein said first queue has existed for the greatest period of time.

70. (Previously Presented) A method as in claim 67, further comprising, during selection of said first queue, asynchronously looking up single domain name server information for a second queue that is different than the first queue.

71. (Previously Presented) A method as in claim 64, wherein said sending further comprises:
determining a speed of processing of said domain; and
adjusting a speed of processing of the e-mails in the queue based on said speed of processing of said single domain.

72. (Previously Presented) A method as in claim 60, further comprising:
maintaining a log representing a number of e-mails which have been sent; and
comparing contents of said log with licensing information, to determine if said number exceeds a licensed number.

73. (Previously Presented) A method, comprising:
obtaining a plurality of e-mails for processing;
forming organization information about said plurality of e-mails, wherein said organization information represents a plurality of queues_ each queue in

said plurality of queues comprising e-mails in said plurality of e-mails that are intended for distribution to a common destination, and

selecting a first queue in said plurality of queues to send e-mails, based on characteristics of the e-mails in the first queue and, during the selecting step,

asynchronously looking up DNS information for a domain name using an asynchronous DNS resolver that operates from a offline DNS cache that is periodically updated for a second queue in said plurality of queues, different than the first queue.

74. (Previously Presented) A method as in claim 73, further comprising:
processing the plurality of e-mails solely within non persistent storage, without requiring that information indicative of the plurality of e-mails be written to and then read from persistent storage during processing.
75. (Previously Presented) A method as in claim 73, wherein said first queue has the most e-mails within the queue.
76. (Previously Presented) A method as in claim 73, wherein said first queue has existed for the greatest period of time.
77. (Cancelled)
78. (Original) A method as in claim 73, further comprising storing, in persistent storage, recovery information indicative of the processing, said recovery information being used for recovery from a system fault.
79. (Previously Presented) A method as in claim 78, wherein said recovery information includes information indicative of said plurality of e-mails, wherein said information is indicative of less than the entirety of each e-mail in said plurality of e-mails.

80. (Previously Presented) A method as in claim 73, wherein said processing comprises:
- arranging information about the plurality of e-mails into a plurality of queues, each queue in the plurality of queues representing a single domain; and
 - sending e-mails to a recipient, by sending a plurality of e-mails to a single domain at a specific sending instance.
81. (Previously Presented) A method as in claim 80 wherein said sending comprises:
- opening a communication channel to the single domain, and
 - sending a plurality of e-mails within the communication channel.
82. (Previously Presented) A method as in claim 80, wherein said processing comprises:
- determining a speed of processing of said single domain; and
 - adjusting a speed of sending of e-mails to said single domain based on said speed of processing of said single domain.
83. (Previously Presented) A method as in claim 73, further comprising:
- maintaining a log representing a number of e-mails which have been processed; and
 - comparing contents of said log with licensing information, to determine if said number exceeds a licensed number.
84. (Previously Presented) A computer system comprising:
- means for obtaining a plurality of e-mails intended for distribution to a plurality of respective destinations;
 - means for creating a data node for each e-mail in said plurality of e-mails, wherein each data node includes a pointer to the corresponding e-mail in persistent storage;

means for processing the plurality of data nodes solely within non persistent storage, without requiring that information indicative of the e-mails be written to and then read from persistent storage during the processing of the e-mails, wherein said processing comprises, for each respective data node:

- (i) determining a destination domain of the respective data node; and
 - (ii) adding the respective data node to a queue corresponding to the destination domain of the respective data node when the queue exists; and
 - (iii) creating a queue corresponding to the destination domain and adding the respective data node to the queue when the queue does not exist; and
- wherein the means for processing further comprises:
- selecting a first queue that contains data nodes;
 - retrieving e-mails corresponding to each of the data nodes in the first queue;
 - sending each of the e-mails corresponding to each of the data nodes in the first queue to a destination domain of the first queue; and
 - extinguishing the first queue.

85. (Previously Presented) A computer system comprising:
- means for obtaining a plurality of e-mails for processing;
 - means for forming a queue map comprising a plurality of queues, each queue in the plurality of queues associated with a specific domain, the queue map representing a plurality of destinations for the plurality of e-mails;
 - means for sending a plurality of e-mails to a specific destination in said plurality of destinations at a specific time; and
 - means for asynchronously looking up, during said sending, DNS information for a domain name using an asynchronous DNS resolver that operates from an offline DNS cache that is periodically updated, for a different destination in said plurality of destinations, to be sent at a future time.

86. (Previously Presented) A computer system comprising:
- means for obtaining a plurality of e-mails for processing;

means for forming organization information about said plurality of e-mails, wherein said organization information represents a plurality of queues, each queue in said plurality of queues comprising e-mails in said plurality of e-mails that are intended for distribution to a common destination; and

means for selecting a first queue in said plurality of queues to send e-mails, based on characteristics of the e-mails in the first queue and, during the selecting,

asynchronously looking up DNS information for a domain name using an asynchronous DNS resolver that operates from an offline DNS cache that is periodically updated, for a second queue in said plurality of queues, different than the first queue.